

Claims

1. A method for providing a touch pad UI function for a mobile terminal, where the mobile terminal comprises a display and wherein the touch pad UI is a touch pad user interface input device, comprising the steps of:
 - arranging the touch pad UI into the back side of the mobile terminal,
 - operating the touch pad UI by touching the touch pad UI at least by one finger, and
 - observing the position of at least one finger on the touch pad UI, and determining the corresponding position of at least one cursor on the display in order to displaying said cursor according to the position of at least one finger on the touch pad UI.
2. A method according to claim 1, wherein the touch pad UI is a multifunctional pressure sensitive touch pad user interface input device.
3. A method according to claim 1, further including the step of displaying a cursor on the display essentially on the imaged line extending from the finger on the touch pad perpendicularly through the touch pad UI and display.
4. A method according to claim 1, wherein the touch pad UI is fixedly arranged into the back side of the mobile terminal.
5. A method according to claim 1, wherein the touch pad UI is hinged to the mobile terminal at least at one of the following part of the mobile terminal: lowest part, upper part, right part and left part.
6. A method according to claim 5, further including the steps of arranging the hinged touch pad UI in the position of angle between 0° and 360° relative to the mobile terminal and observing said position angle and if the touch pad UI is closed, when the position angle is essentially 0° , the touch pad UI is arranged to act as a mechanical protector for the display and the touch sensitive surface of the touch pad UI, and if the touch pad UI is opened so that the position angle is more than approximately 0° , the touch pad UI is arranged to act as a data input and pointing device.
7. A method according to claim 6, wherein the touch pad UI is completely opened so that the position angle is essentially 360° , the touch pad UI is arranged to operate in two-

hand mode, where data is inputted by at least one finger through the touch pad UI device so that when moving the finger on the touch pad a cursor corresponding the moving finger will move on the display of the mobile terminal according to the movements of the finger.

- 5 8. A method according to claim 6, further including the steps of observing whether the position angle of the touch pad UI, which is hinged either to bottom or upper part of the mobile terminal, is more than predetermined limit and if, converting the read direction data of the fingers movements on the touch pad in vertical direction to contrary.
9. A method according to claim 6, further including the steps of observing whether the position angle of the touch pad UI, which is hinged either to right or left part of the mobile terminal, is more than predetermined limit and if, converting the read direction data of the fingers movements on the touch pad in horizontal direction to contrary.
- 10 10. A method according to claim 8, wherein the predetermined limit for the position angle is approximately 180°.
- 15 11. A method according to claim 1, further including the step of displaying at least one object on the display of the mobile terminal, where the object is at least one of the following: menu, icon, number, letter, character, button and at least part of virtual keyboard.
12. A method according to claim 1, further including the step of observing press of at least one finger on the touch pad UI and determining the press as a click-operation.
- 20 13. A method according to claim 1, further including the step of dividing the touch pad UI virtually at least one first portion and at least one second portion.
14. A method according to claim 13, wherein a first finger on the first portion of the touch pad UI moves a cursor in the display and a second finger on the second portion of the touch pad UI scrolls a content displayed on the display to the up, down, left and right directions.
- 25 15. A method according to claim 13, wherein a content displayed on the display is zoomed in/out when the first portion of the touch pad UI is pressed by a first finger and a second finger is moved on the second portion of the touch pad UI at the same time.
- 30 16. A method according to claim 1, wherein the content displayed on the display is zoomed in/out when a button is pressed in the mobile terminal and a finger is moved on the touch pad UI at the same time.

17. A mobile terminal comprising a touch pad UI and a display, wherein the touch pad UI is a touch pad user interface input device, and

wherein the touch pad UI is arranged into the back side of the mobile terminal,

wherein the touch pad UI is arranged to be operated by a touch of at least one finger, and

wherein the mobile terminal is further arranged to observe the position of at least one finger on the touch pad UI, and determine the corresponding position of at least one cursor on the display in order to display said cursor according to the position of at least one finger on the touch pad UI.

18. A mobile terminal according to claim 17, wherein the touch pad UI is a multifunctional pressure sensitive touch pad user interface input device

19. A mobile terminal according to claim 17, wherein the mobile terminal is arranged to display a cursor on the display essentially on the imaged line extending from the finger on the touch pad perpendicularly through the touch pad and display.

20. A mobile terminal according to claim 17, wherein the touch pad UI is fixedly arranged into the back side of the mobile terminal.

21. A mobile terminal according to claim 17, wherein the touch pad UI is hinged to the mobile terminal at least at one of the following part of mobile terminal: lowest part, upper part, right part and left part.

22. A mobile terminal according to claim 21, wherein the hinged touch pad UI is arrangeable into the position of angle between 0° and 360° relative to the mobile terminal and the mobile terminal is arranged to observe said position angle and if the touch pad UI is closed, when the position angle is essentially 0° , the touch pad UI is arranged to act as a mechanical protector for the display and the touch sensitive surface of the touch pad UI, and if the touch pad UI is opened so that the position angle is more than approximately 0° , the touch pad UI is arranged to act as a data input and pointing device.

23. A mobile terminal according to claim 22, wherein the touch pad UI is arranged completely open so that the position angle is essentially 360° , the touch pad UI is arranged to operate in two-hand mode, where data is arranged to be inputted by at least one finger through the touch pad touch pad UI device and where a cursor on the display of the mobile terminal corresponding the moving finger is arranged to move according the movements of the finger on the touch pad.

24. A mobile terminal according to claim 22, wherein the mobile terminal is arranged to observe whether the position angle of the touch pad UI hinged either to bottom or upper part of the mobile terminal, is more than predetermined limit and if, arranged to convert the read direction data of the fingers movements on the touch pad in vertical direction to contrary.
25. A mobile terminal according to claim 22, arranged to observe whether the position angle of the touch pad UI hinged either to right or left part of the mobile terminal, is more than predetermined limit and if, arranged to convert the read direction data of the fingers movements on the touch pad in horizontal direction to contrary.
26. A mobile terminal according to claim 24, wherein the predetermined limit for the position angle is approximately 180°.
27. A mobile terminal according to claim 17, wherein the mobile terminal is arranged to display at least one object on the display of the mobile terminal, where the object is at least one of the following: menu, icon, number, letter, character, button and at least part of virtual keyboard.
28. A mobile terminal according to claim 17, wherein the mobile terminal is arranged to observe presses of at least one finger on the touch pad UI and determine the press as a click-operation.
29. A mobile terminal according to claim 17, wherein the mobile terminal is arranged to divide the touch pad UI virtually at least one first portion and at least one second portion.
30. A mobile terminal according to claim 29, wherein the mobile terminal is arranged to move a cursor in the display when moving a first finger on the first portion of the touch pad UI and scrolling a content displayed on the display to the up, down, left and right directions when moving a second finger on the second portion of the touch pad UI in appropriate direction.
31. A mobile terminal according to claim 29, wherein the mobile terminal is arranged to zoom a content displayed on the display in/out when the first portion of the touch pad UI is pressed by a first finger and a second finger is moved on the second portion of the touch pad UI at the same time.

32. A mobile terminal according to claim 17, wherein the mobile terminal is arranged to zoom a content displayed on the display in/out when a button is pressed in the mobile terminal and a finger is moved on the touch pad UI at the same time.

33. A touch pad UI for a mobile terminal, where the mobile terminal comprises a display, wherein the touch pad UI is a touch pad user interface input device, and

wherein the touch pad UI is arrangeable into the back side of the mobile terminal,

wherein the touch pad UI is arranged to be operated by a touch of at least one finger, and

the touch pad UI is further arranged to observe the position of at least one finger on the touch pad UI, and determine the corresponding position of at least one cursor on the display in order to display said cursor according to the position of at least one finger on the touch pad UI.

34. A touch pad UI according to claim 33, wherein the touch pad UI is a multifunctional pressure sensitive touch pad user interface input device

35. A touch pad UI according to claim 33, wherein the touch pad UI is fixedly arranged into the back side of the mobile terminal.

36. A touch pad UI according to claim 33, wherein the touch pad UI is hinged to the mobile terminal at least at one of the following part of mobile terminal: lowest part, upper part, right part and left part.

37. A touch pad UI according to claim 36, wherein the hinged touch pad UI is arrangeable into the position of angle between 0° and 360° relative to the mobile terminal and the touch pad UI is arranged to observe said position angle and if the touch pad UI is closed, when the position angle is essentially 0° , the touch pad UI is arranged to act as a mechanical protector for the display and the touch sensitive surface of the touch pad UI, and if the touch pad UI is opened so that the position angle is more than approximately 0° , the touch pad UI is arranged to act as a data input and pointing device.

38. A touch pad UI according to claim 37, wherein the touch pad UI is arranged completely open so that the position angle is essentially 360° , the touch pad UI is arranged to operate in two-hand mode, where data is arranged to be inputted by at least one finger through the touch pad touch pad UI device and where a cursor on the display of the mobile terminal corresponding the moving finger is arranged to move according the movements of the finger on the touch pad.

39. A touch pad UI according to claim 37, wherein the touch pad UI is arranged to observe whether the position angle of the touch pad UI hinged either to bottom or upper part of the mobile terminal, is more than predetermined limit and if, arranged to convert the read direction data of the fingers movements on the touch pad in vertical direction to contrary.
40. A touch pad UI according to claim 37, arranged to observe whether the position angle of the touch pad UI hinged either to right or left part of the mobile terminal, is more than predetermined limit and if, arranged to convert the read direction data of the fingers movements on the touch pad in horizontal direction to contrary.
41. A touch pad UI according to claim 39, wherein the predetermined limit for the position angle is approximately 180°.
42. A touch pad UI according to claim 33, wherein the touch pad UI is arranged to observe presses of at least one finger on the touch pad UI and determine the press as a click-operation.
43. A touch pad UI according to claim 33, wherein the touch pad UI is arranged to divide the touch pad UI virtually at least one first portion and at least one second portion.
44. A touch pad UI according to claim 43, wherein the touch pad UI is arranged to move a cursor in the display when moving a first finger on the first portion of the touch pad UI and scrolling a content displayed on the display to the up, down, left and right directions when moving a second finger on the second portion of the touch pad UI in appropriate direction.
45. A touch pad UI according to claim 33, wherein the touch pad UI is arranged to zoom a content displayed on the display in/out when the first portion of the touch pad UI is pressed by a first finger and a second finger is moved on the second portion of the touch pad UI at the same time.
46. A touch pad UI according to claim 33, wherein the touch pad UI is arranged to zoom a content displayed on the display in/out when a button is pressed in the mobile terminal and a finger is moved on the touch pad UI at the same time.
47. A touch pad UI, where the touch pad UI is a touch pad user interface input device, comprises a touch sensitive surface to detect touch and movement of a finger on the surface of the touch pad UI and further comprises a pressure sensitive layer under the

touch sensitive surface to detect press of a finger on the touch pad UI simulating a click-operation.

48. Method according to claim 9, wherein the predetermined limit for the position angle is approximately 180° .

5 49. Mobile terminal according to claim 25, wherein the predetermined limit for the position angle is approximately 180° .

50. Touch pad according to claim 40, wherein the predetermined limit for the position angle is approximately 180° .